

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

15 DEC 2004

(PCT Rule 71.1)

☐ TO BE REVIEWED  
BY ATTORNEY

Date of mailing  
(day/month/year)

12.05.2004

Applicant's or agent's file reference  
CL1759PCT

## IMPORTANT NOTIFICATION

International application No.  
PCT/US 03/20893

International filing date (day/month/year)  
30.06.2003

Priority date (day/month/year)  
01.07.2002

Applicant  
E.I. DU PONT DE NEMOURS AND COMPANY et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

## 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability requirements for enabling disclosure, clarity and support for the claims.

EEL NOTED

MAY 19 2004

01 Jan 2005

Name and mailing address of the international  
preliminary examining authority:



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☐ TO BE REVIEWED  
BY ATTORNEY


Rec'd PCT/PTO 15 DEC 2004

PATENT COOPERATION TREATY

PCT

10/5185

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 13 MAY 2004

WIPO


PCT

Applicant's or agent's file reference CL1759PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 03/20893	International filing date (day/month/year) 30.06.2003	Priority date (day/month/year) 01.07.2002
International Patent Classification (IPC) or both national classification and IPC H01M4/92		
Applicant E.I. DU PONT DE NEMOURS AND COMPANY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
  - ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  23.01.2004	Date of completion of this report  12.05.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Koessler, J-L  Telephone No. +49 89 2399-7217



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/US 03/20893**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-20 as originally filed

**Claims, Numbers**

1-26 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/US 03/20893**

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-26
	No: Claims	
Inventive step (IS)	Yes: Claims	1-26
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-26
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1 Cited documents**

Reference is made to the following documents:

D1: Journal Of Applied Electrochemistry, Chapman And Hall. London, Gb  
(08-1999), 29(8), 951-960

D2: US-A-5872074

D3: US-A-5767036

D4: US-A1-2002022160

**2 Novelty (Art. 33(2) PCT)**

The present application relates to a catalyst useful in a proton exchange membrane containing fuel cell.

D1 and D2 (ex. 4) relate to a catalyst of formula  $\text{PtRuAl}_8$  which excluded from the scope of the claims by means of a proviso. Although, D2 also relates to composite or alloy made of A-X-Y, A has to be selected from a list of 4 members and Y has to be selected from 1 of 4 lists comprising more than 10 members, 8 of the 9 possible X of claim 1 have to be selected from a list 33 member to yield the catalysts of the present application.

D3 is directed to a catalyst for use in a fuel cell containing a PtAl alloy on a conductive carbon carrier, wherein the atomic ratio of platinum to aluminum is from 80:20 to 60:40. Also disclosed are multimetallic alloy catalysts for use as electrode catalysts in fuel cells. Catalysts with high activity and stability are obtained on the basis of carbided platinum-aluminum alloy catalysts by adding alloying elements of the groups VIB, VIIB, VIII and IB of the Periodic Table of Elements. The only exemplified ternary alloy comprising Al (ex. 5) comprises also Cr. The PtCrAl alloy are excluded from the scope of the present application.

D4 relates to compositions useful as electrode materials in devices such as batteries, capacitors, fuel cells and similar devices as also in the direct production of hydrogen and oxygen gas. The compositions comprise: (A) one or more of the transition metal elements; optionally (B) aluminum; optionally (C) one or more of the group 1A alkali metal elements; (D) one or more elements and/or compounds having high mobility values for electrons; and (E) a source of ionizing radiation. Thus, components A, D and E are required ingredients and components B and C are both optional. Components B and C may be used independently alone, together, or not at all. None of the exemplified alloys of D4 fall under the scope of the present application.

Hence, the present application meets the requirements of Art. 33(2) PCT because the subject-matter of claims 1-26 is novel.

### **3 Inventive step (Art. 33(3) PCT)**

The closest prior art is considered to be document D3.

The problem addressed in the present application is to be regarded as to provide alternative catalysts, a coated substrate comprising one of said catalyst and a fuel cell comprising said coated substrate.

None of the cited documents nor a combination of the teaching thereof would fairly suggest that the catalysts exhibit a lower onset voltage for methanol electrooxidation (control 1 p. 13-14)

Hence, the present application meets the requirements of Art. 33(3) because the subject-matter of claims 1-26 is inventive.

### **4 Industrial applicability (Art. 33(4) PCT)**

The subject-matter of claims 1-26 is considered to be industrially applicable.

**5 Clarity (Art. 6 PCT)**

The relative term "substantially" used in claim 1 has no well-recognised meaning and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT). The applicant is requested to adapt also the description where appropriate.

Claim 11 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved which merely amounts to a statement of the underlying problem. The technical features necessary for achieving this result should be added.

The embodiments of the invention described on p. 7 l. 16, p.8 l. 1, p. 12 l. 12, 25, (i.e. " $a > 0$ ,  $b > 0$ ") do not fall within the scope of the claims. This inconsistency between the claims and the description leads to doubt concerning the matter for which protection is sought, thereby rendering the claims unclear (Article 6 PCT).

**6 Other defects of the application**

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D3 and D4 is not mentioned in the description, nor are these documents identified therein.